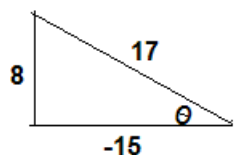


1. Find all six (sin, cos, tan, csc, sec, cot) trigonometric values of θ with the given conditions. Give exact answers (fractions, not decimals):

a) $\cos \theta = -\frac{15}{17}$, $\sin \theta > 0$

b) $\tan \theta = -1$, $\sin \theta < 0$



$$\sin \theta = \frac{8}{17}$$

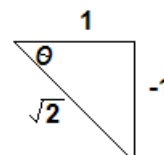
$$\csc \theta = \frac{1}{\sin \theta} = \frac{17}{8}$$

$$\cos \theta = -\frac{15}{17}$$

$$\sec \theta = \frac{1}{\cos \theta} = -\frac{17}{15}$$

$$\tan \theta = -\frac{8}{15}$$

$$\cot \theta = \frac{1}{\tan \theta} = -\frac{15}{8}$$



$$\sin \theta = -\frac{1}{\sqrt{2}}$$

$$\csc \theta = \frac{1}{\sin \theta} = -\sqrt{2}$$

$$\cos \theta = \frac{1}{\sqrt{2}}$$

$$\sec \theta = \frac{1}{\cos \theta} = \sqrt{2}$$

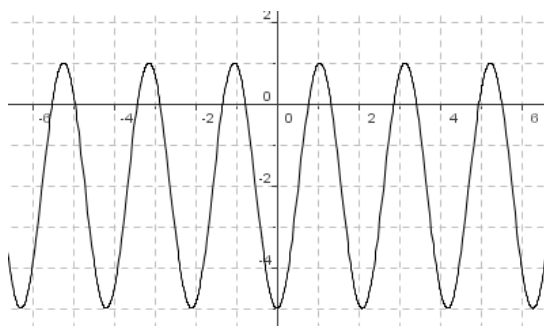
$$\tan \theta = -1$$

$$\cot \theta = \frac{1}{\tan \theta} = -1$$

2. Sketch the graph of each function. State its domain, range, period and amplitude:

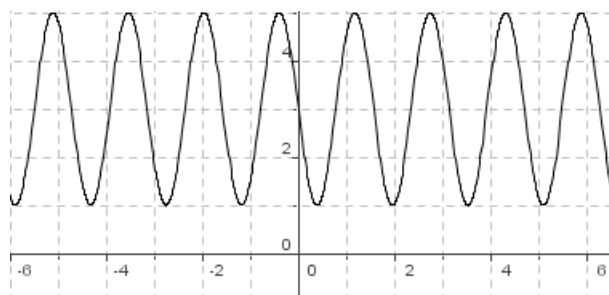
a) $y = 3\cos(3x + \pi) - 2$

b) $y = 2\sin(4x + \pi) + 3$



D: $(-\infty, \infty)$ R: $[-5, 2]$

period = $\frac{2\pi}{3}$ amplitude = 3



D: $(-\infty, \infty)$ R: $[1, 5]$

period = $\frac{\pi}{2}$ amplitude = 2

3. Give the measure of the angle in radians and degrees. Give exact answers where possible:

a) $\sin^{-1}(0.5) = \frac{\pi}{6} \text{ radians} = 30^\circ$

b) $\sin^{-1}\left(-\frac{\sqrt{2}}{2}\right) = -\frac{\pi}{6} \text{ radians} = -45^\circ$

c) $\tan^{-1}(-5) \approx 1.373 \text{ radians} \approx 70.69^\circ$

d) $\cos^{-1}(0.7) \approx 0.795 \text{ radians} \approx 45.57^\circ$

4. Solve the equation in the specified interval:

a) $\tan x = 25$, $0 \leq x \leq 2\pi$
 $x \approx 1.531, 4.672$

b) $\cos x = -0.7$, $2\pi \leq x \leq 4\pi$
 $x \approx 8.629$

c) $\csc x = 2$, $0 < x < 2\pi$
 $x = \frac{\pi}{6}$

d) $\sec x = -3$, $-\pi \leq x < \pi$
 $x \approx 1.911$

5. Match each function with its graph. Do it without using a graphing calculator.

a) $y = 3\cos(x-2)$

ii

b) $y = -3\sin(x) - 2$

vi

c) $y = \sec x$

iv

d) $y = \sin(2x)$

iii

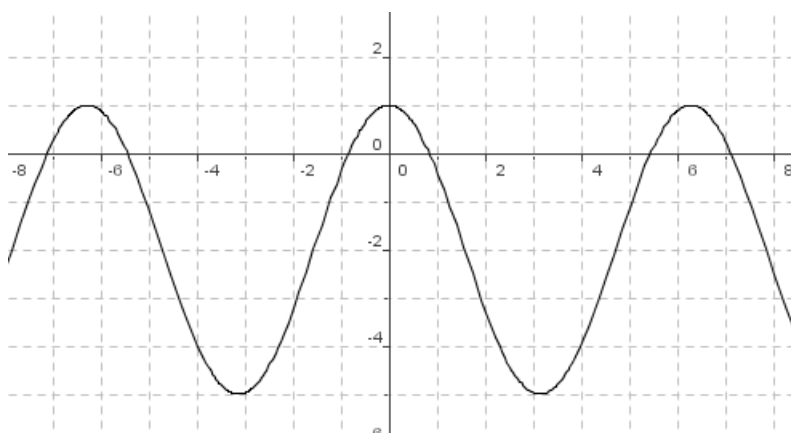
e) $y = 3\cos x - 2$

i

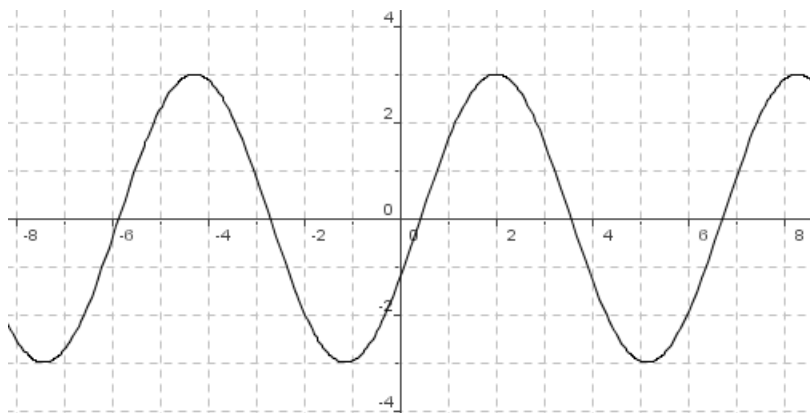
f) $y = \csc x$

v

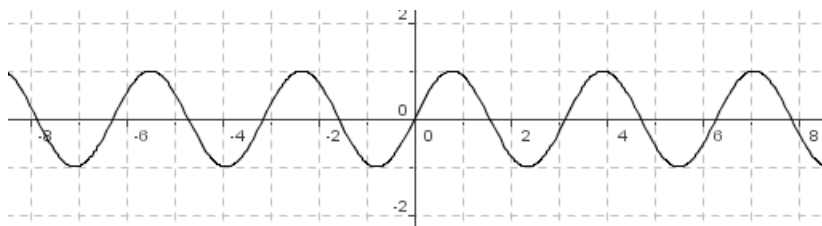
i.



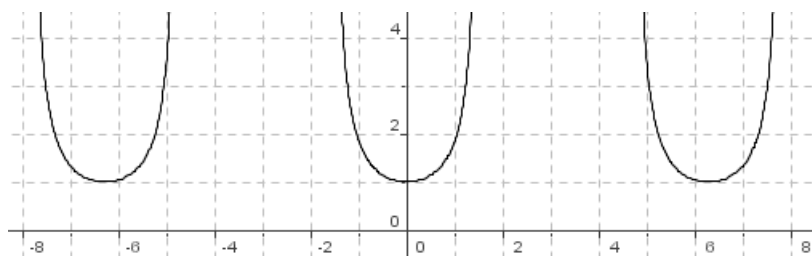
ii.



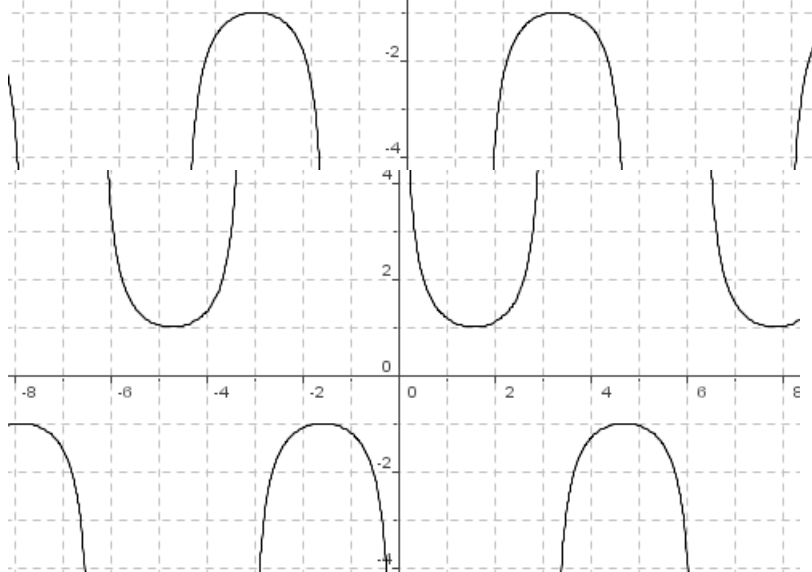
iii.



iv.



v.



vi.

